

CLAIMS

1. A method for expressing recombinant proteins, characterized in that it consists in introducing into
5 cyanobacteria a sequence encoding a protein downstream of an inducible cyanobacterial transcription promoter sequence, and then in inducing the expression of this protein and isolating the recombinant proteins thus synthesized.
- 10 2. The method as claimed in claim 1, in which the transcription promoter sequence is that of the cyanobacterial *nir* operon.
- 15 3. The method as claimed in either of claims 1 and 2, in which the transcription promoter sequence is induced by nitrates and/or nitrites.
- 20 4. The method as claimed in any one of claims 1 to 3, in which the transcription promoter sequence is induced by NaNO_3 .
- 25 5. The method as claimed in any one of claims 1 to 4, in which the cyanobacterium is of the species *Anabaena*.
6. The method as claimed in claim 5, in which the cyanobacterium is *Anabaena* sp. PCC 7120.
7. The method as claimed in any one of claims 1 to 6,
30 in which the cyanobacterial culture medium contains ^{13}C and/or ^{15}N and/or ^2H .
8. The method as claimed in any one of claims 1 to 7,
35 in which the cyanobacterial culture medium contains at least $\text{Na}^{15}\text{NO}_3$.

9. The method as claimed in any one of claims 1 to 8, in which the recombinant protein expressed is toxic for the cyanobacteria.

5 10. A vector, characterized in that it contains a DNA sequence encoding a recombinant protein under the control of an inducible cyanobacterial transcription promoter sequence.

10 11. The vector as claimed in claim 10, in which the inducible cyanobacterial transcription promoter sequence is that of the cyanobacterial *nir* operon.

15 12. The use of a vector as claimed in either of claims 10 and 11, for expressing recombinant proteins in cyanobacteria.

20 13. The use as claimed in claim 12, said cyanobacteria being cultured in a medium which contains ^{13}C and/or ^{15}N and/or ^2H .

25 14. The use as claimed in either of claims 12 and 13, said cyanobacteria being cultured in a medium which contains at least $\text{Na}^{15}\text{NO}_3$.

15. A cyanobacterium, characterized in that it has been transformed with a vector as claimed in either of claims 10 and 11.

30 16. The cyanobacterium as claimed in claim 15, which is of the species *Anabaena*.

17. The cyanobacterium as claimed in claim 16, which is *Anabaena* sp. PCC 7120.